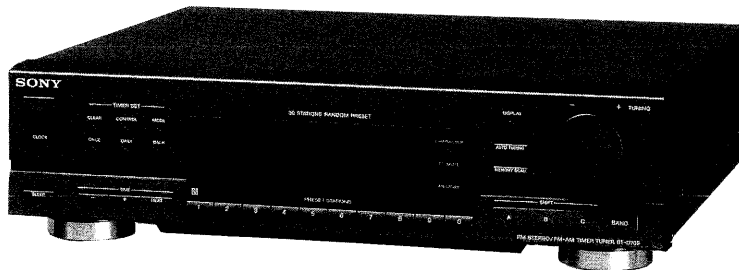


# ST-D709

## SERVICE MANUAL

*AEP Model  
UK Model  
E Model  
Australian Model  
Tourist Model*



This set is the tuner section in  
LBT-A57CD/A57CDM/A67CD/A67CDM/A77CD/A77CDM  
/D509CD/D559CD/D609CD/D709CD/D759CD.

### SPECIFICATIONS

|                        |                                                                                                                                                                                                                                              |                                                                                                                                                                                                             |                                                                                                                                                                        |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System                 | FM stereo<br>FM/AM superheterodyne tuner                                                                                                                                                                                                     | Power consumption                                                                                                                                                                                           | AEP, G, IT, EE model 11W<br>UK, E, AUS, EA, MY, SP, JE model 10W                                                                                                       |
| FM tuner section       |                                                                                                                                                                                                                                              | AC outlet                                                                                                                                                                                                   | 2 switched, total 450W max.                                                                                                                                            |
| Tuning range           | except for EE model<br>87.5 to 108 MHz<br>EE model<br>FM1: 65 to 74MHz<br>FM2: 87.5 to 108MHz                                                                                                                                                | Weight                                                                                                                                                                                                      | Approx. 2.7kg (6 lbs)                                                                                                                                                  |
| Antenna                | 75 ohms unbalanced<br>300Ω balanced (E, AUS, EA, MY, SP, JE)                                                                                                                                                                                 | Dimensions                                                                                                                                                                                                  | AEP, G, IT, EE model<br>Approx. 355×95×330mm<br>(14×3 <sup>9</sup> / <sub>4</sub> ×12 <sup>7</sup> / <sub>8</sub> inches)<br>(w/h/d, including projections)            |
| Intermediate frequency | 10.7 MHz                                                                                                                                                                                                                                     |                                                                                                                                                                                                             | UK, E, AUS, EA, MY, SP, JE model<br>Approx. 355×95×340mm<br>(14×3 <sup>3</sup> / <sub>4</sub> ×13 <sup>3</sup> / <sub>4</sub> inches<br>(w/h/d, including projections) |
| AM tuner section       |                                                                                                                                                                                                                                              |                                                                                                                                                                                                             |                                                                                                                                                                        |
| Tuning range           | AEP, UK, G, IT, EE model<br>MW: 522 to 1,611kHz (IT)<br>531 to 1,602kHz (AEP, UK, G, EE)<br>LW: 153 to 279kHz (AEP, UK, EE)<br>E, AUS, EA, MY, SP, JE model<br>AM: 531 to 1,602kHz (at 9kHz interval)<br>530 to 1,700kHz (at 10kHz interval) | Design and specifications are subject to change without notice.                                                                                                                                             |                                                                                                                                                                        |
| Antenna                | AM loop antenna<br>External antenna terminal                                                                                                                                                                                                 | • G : German model<br>• IT : Italian model<br>• EE : East European model<br>• AUS: Australian model<br>• EA : Saudi Arabia model<br>• MY : Malaysia model<br>• SP : Singapore model<br>• JE : Tourist model |                                                                                                                                                                        |
| Intermediate frequency | 450 kHz                                                                                                                                                                                                                                      |                                                                                                                                                                                                             |                                                                                                                                                                        |
| Power requirements     | AEP, G, IT, EE model<br>220—230V AC, 50/60Hz<br>UK model<br>240V AC, 50/60Hz<br>E, AUS, EA, MY, SP, JE model<br>120V/220V—240V AC, adjustable<br>with the voltage selector, 50/60Hz                                                          |                                                                                                                                                                                                             |                                                                                                                                                                        |

FM STEREO/FM-AM TIMER TUNER  
**SONY®**

## SECTION 2 ELECTRICAL ADJUSTMENTS

### Precautions in Repairing

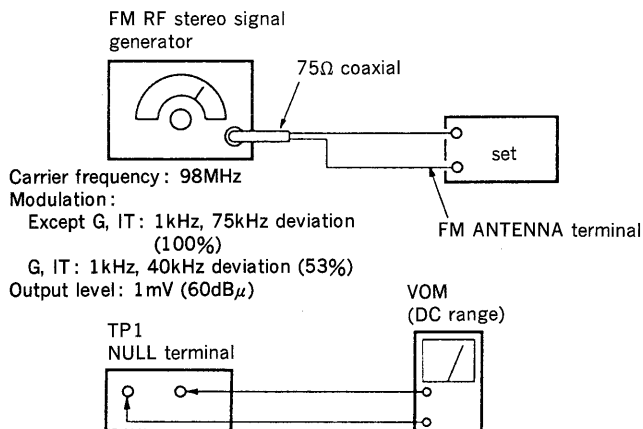
If the front end unit fails, it is difficult to repair the inner circuits, so replace the entire front end unit.

### FM SECTION

#### FM Discriminator Adjustment (NULL Adjustment)

##### Setting :

BAND switch : FM



##### Procedure :

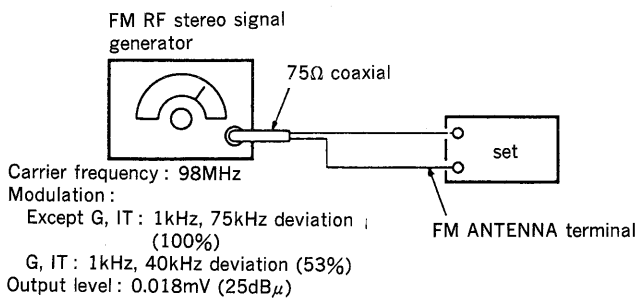
1. Tune the set to 98MHz.
2. Adjust T21 for 0V reading on the VOM.

**Note :** FM Tuning Level adjustment should be made after FM discriminator alignment.

#### FM Tuning Level Adjustment

##### Setting :

BAND switch : FM



##### Procedure :

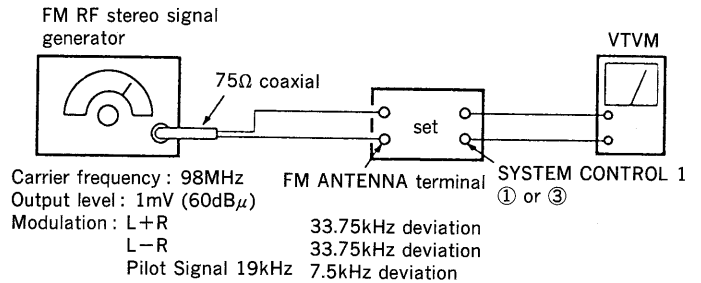
1. Tune the set to 98MHz.
2. Adjust RV24 so that the TUNED indicator goes on.

- G : German model
- IT : Italian model

#### FM Stereo Separation Adjustment

##### Setting :

BAND switch : FM



##### Procedure :

Tune the set to 98MHz.

| FM stereo<br>Signal generator<br>Output channel | VTVM<br>connection | VTVM<br>reading (dB)                     |
|-------------------------------------------------|--------------------|------------------------------------------|
| L-CH                                            | L-CH               | Ⓐ                                        |
| R-CH                                            | L-CH               | Ⓑ<br>Adjust RV21 for<br>minimum reading. |
| R-CH                                            | R-CH               | Ⓒ                                        |
| L-CH                                            | R-CH               | Ⓓ<br>Adjust RV21 for<br>minimum reading. |

L-CH Stereo separation : Ⓐ—Ⓑ

R-CH Stereo separation : Ⓒ—Ⓓ

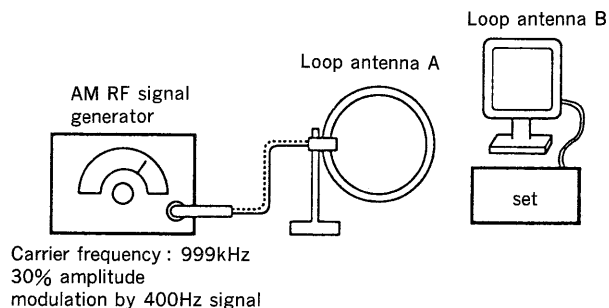
The separations of both channels should be equal.

## AM SECTION

### AM Tuning Level Adjustment

#### Setting :

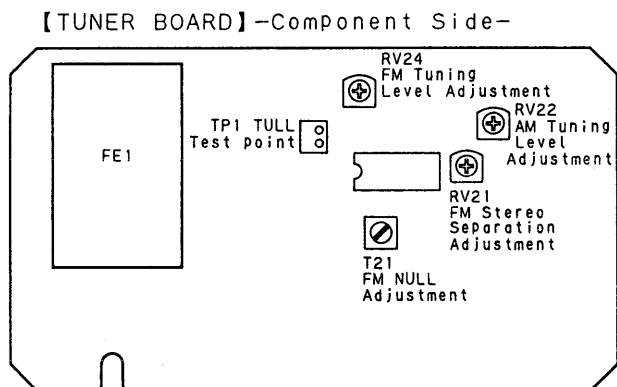
BAND switch : AM or MW



#### Procedure :

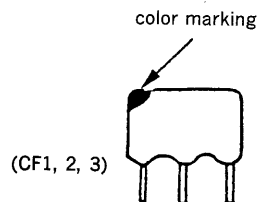
1. Set loop antenna A so that the loop antenna B input level becomes  $58\text{dB}\mu/\text{m}$  ( $0.8\text{mV}/\text{m}$ )
2. Tune the set to 999kHz.
3. Adjust the RV22 so that the TUNED indicator goes on.

#### Adjustment Location :



### Note on Ceramic Filter (CF1, 2, 3) Replacement

This set employs three ceramic filters (CF1, 2, 3) which should have the same color marking to identify their center frequency. Therefore FM IF offset adjustment by D609, D610 mounted is necessary to match the center frequency of the ceramic filters used with FM intermediate frequency.



(CF3: G, IT model only)

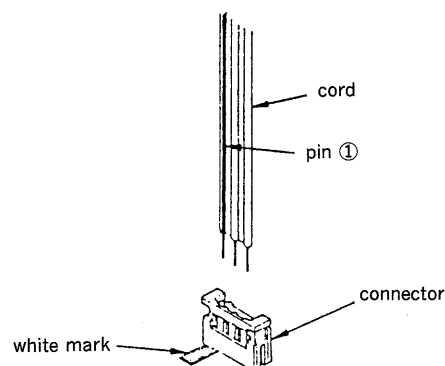
○ : Mounted  
× : not Mounted

| Ceramic filter |                        | Mount    |          | FM intermediate frequency (MHz) |
|----------------|------------------------|----------|----------|---------------------------------|
| Color mark     | Center frequency (MHz) | * A D610 | * B D609 |                                 |
| White          | 10.750                 | ×        | ○        | 10.750                          |
| Red            | 10.700                 | ○        | ○        | 10.700                          |
| Black          | 10.650                 | ○        | ×        | 10.650                          |

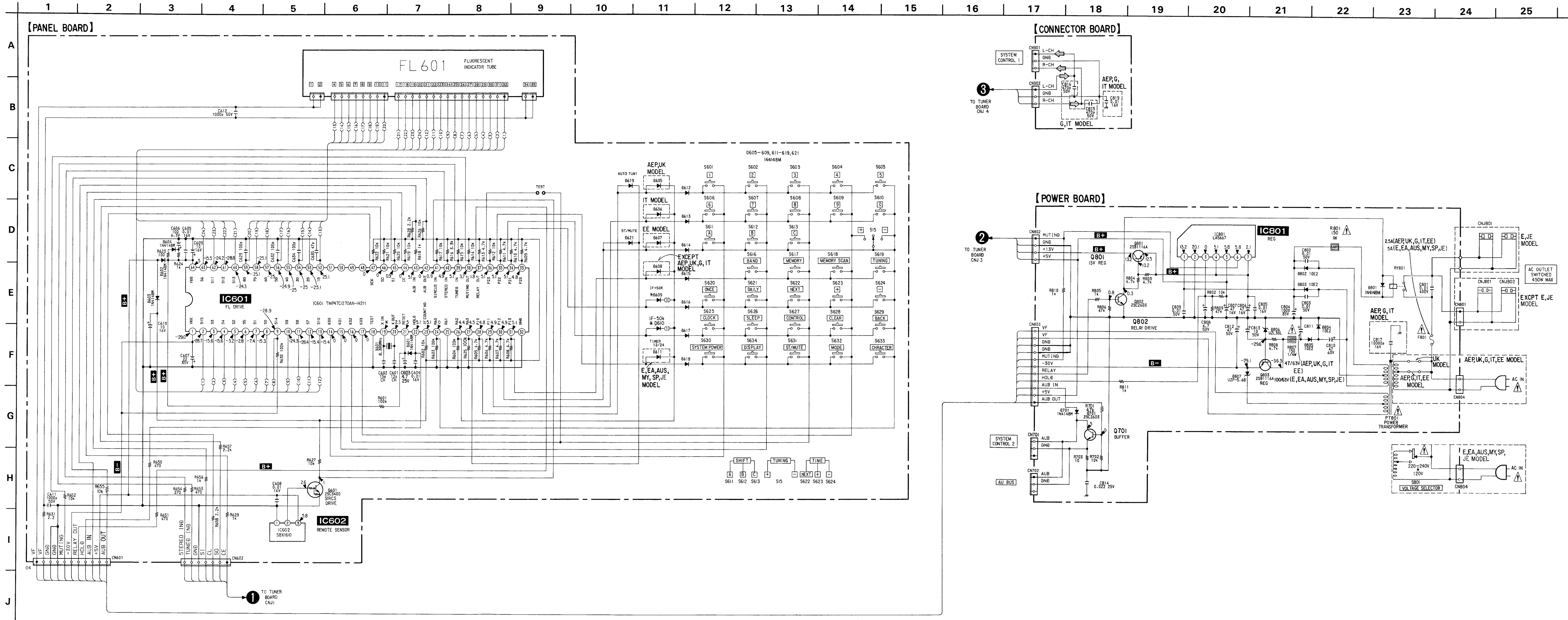
FM intermediate frequency is determined by the three types as shown above. Ceramic filters of same center frequency, i. e., of same color coding should be used for CF1, CF2 and CF3. When replacing the ceramic filters, perform the FM Discriminator Adjustment.

### [Note on Inserting the Cord to the Connector on Tuner Board]

- Insert the cord to the connector fitting Pin ① of the cord in accordance with the white mark on the board at the connector as shown in the figure.



## 3-3. SCHEMATIC DIAGRAM—PANEL SECTION—



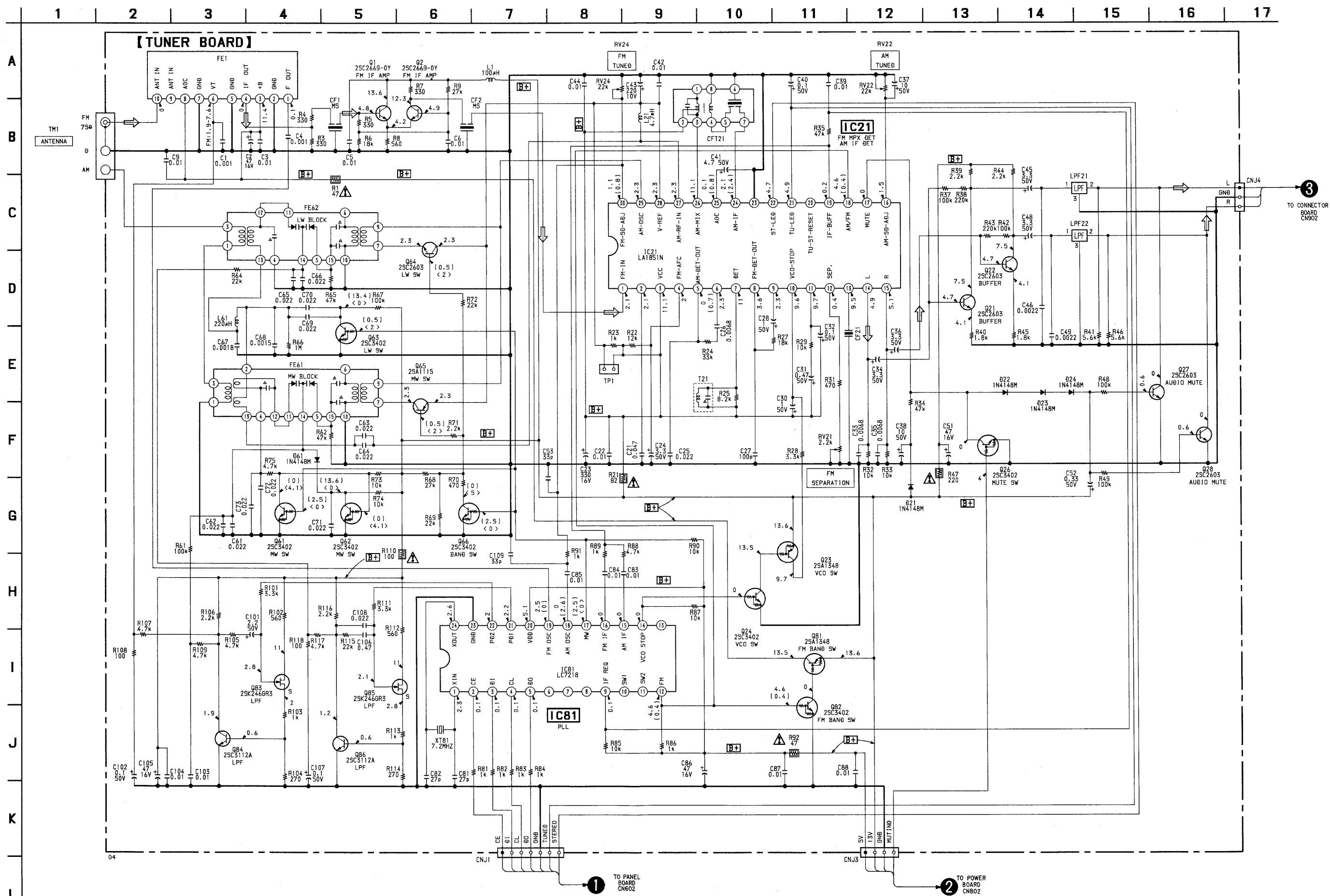
## Note:

- All capacitors are in  $\mu\text{F}$  unless otherwise noted.  $\text{pF}$ :  $\mu\text{F}$  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in  $\Omega$  and  $\frac{1}{4}\text{W}$  or less unless otherwise specified.
- $\square$ : nonflammable resistor.

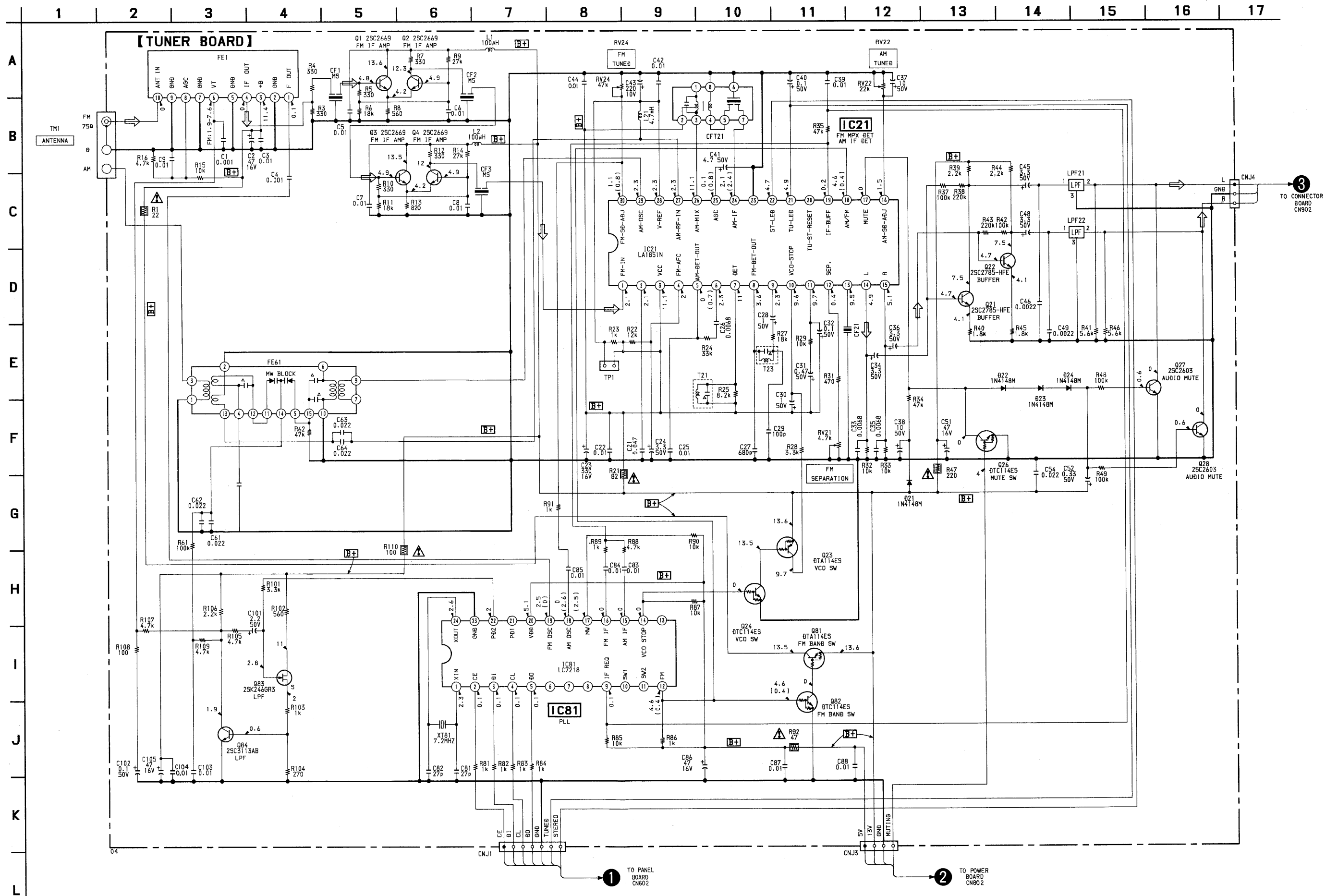
Note: The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input Impedance  $10\text{M}\Omega$ ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
- G : German model
- IT : Italian model
- EE : East European model
- AUS : Australian model
- EA : Saudi Arabia model
- MY : Malaysia model
- SP : Singapore model
- JE : Tourist model

3-4. SCHEMATIC DIAGRAM—TUNER SECTION (AEP, UK, EE model)— • Refer to page 21 for IC Block Diagrams and Note.



3-5. SCHEMATIC DIAGRAM—TUNER SECTION (G, IT model)— • Refer to page 21 for IC Block Diagrams and Note.



3-6. SCHEMATIC DIAGRAM—TUNER SECTION (E, AUS, EA, MY, SP, JE model)—• Refer to page 21 for IC Block Diagrams and Note.

